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East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS

(FOUO 10/80)



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CZECHOSLOVAKIA

PLANT PRODUCTION IN SEVENTH FIVE-YEAR PLAN

Bratislava AGROCHEMIA in Slovak No 9 Sep 80 pp 257-260

[Article by Academician Emil Spaldon, member of CSAV [Czechoslovak Academy of Sciences] and SAV [Slovak Academy of Sciences], DrSc, Advanced School of Agriculture, Nitra: "Plant Production Increase in the Seventh Five-Year Plan"] *

[Text] Following a thorough and critical, yet objective analysis of tasks assigned to agriculture after the 15th CPCZ Congress for the period of the Sixth Five-Year Plan, the 13th Plenary Session of the CPCZ Central Committee and of the CPSI Central Committee almost a year ago evaluated the progress in their fulfillment and set the trends in plant production for the future, particularly for the period of the Seventh Five-Year Plan is already known and--what must be especially emphasized--the resolutions of the 13th plenary session clearly stated the conditions, particularly the material-technical conditions, which must be met by our entire society, if these tasks are to be implemented. In other words, it is a comprehensive document which our agriculture has not had so far. If every agricultural enterprise, the entire managerial and research sphere, and all input production ministries fulfill the tasks assigned to them, then the targets set for plant production, though very challenging, will be met. It must be emphasized, however, that we face, both quantitatively and qualitatively, a very demanding program for plant production increase. In its implementation, nothing must be neglected in the entire agronomic complex. The quality of agronomy, characterized by the effective, creative application of scientific knowledge and experience in progressive practice, must not lag behind.

Conditions of Plant Production Increase

The basic condition of further plant production increase is peaceful work--world peace. The population is increasing and the area of the best arable and agricultural land is decreasing and its share per capita is declining. On the other hand, the demand for higher nutritional, biological and technological quality of food is increasing, while the share of domestically produced food should increase over the present 93-94 percent in order to achieve self-sufficiency. This program is based on the relatively high level of yields of principal agricultural products per hectare and this places big demands on the agronomic skill, and the professional and political level of agronomic service. We have still not completed the process of reclamation of our soils (irrigating, supplying supplementary nutrients and soil acidity).

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The labor force active in plant production is decreasing, while the share of biological services is increasing. On the other hand, the number of qualified experts is increasing along with the input of scientific-technical information in production. Some problems persist in material and technical provisioning. With the increasing material and technical inputs in production, their effectiveness is gradually declining and the energy crisis is creating complex economic conditions for plant production.

General Tasks of Plant Production

The trends in plant production outlined above must be reflected in the following manner:

1. Intensification is the only possible variant in agronomy;
2. in order to achieve self-sufficiency, plant production must in advance increase the deliveries for direct nutrition of man, for feeding of animals and for the processing industries;
3. the demand for quality, particularly for the improvement of nutritional value of the "consumer basket," will necessitate certain changes in the structure of plant production for which we do not have any reserves in the land area. Therefore, the changes must lead to the better utilization of soil and to the increased production of total bioplasm of plant products;
4. with reference to the world and domestic economy, we must redefine more accurately Point 1 according to the principle of effective rational intensification. In other words, the intensification factors must be increased in such a way as to achieve with agronomic methods, in accordance with our planned development, their effective utilization by cultivating field crops with rational agricultural engineering based on science as the direct productive force.

Proceeding from these approaches, the document from the 13 Plenary Session of the CPCZ Central Committee and CPSL Central Committee outlines the tasks and the means to be applied in our agriculture. Let us try now to formulate them in specific terms and figures. I must emphasize that these are only my personal speculations because the exact tasks will be defined by the 16th CPCZ Congress and the law on the Seventh Five-Year Plan. As of now, I would like merely to indicate the desirable trends of development and give reasons for them.

Grain-Growing Program

Grain crops will continue to constitute the key component of plant production. Approximately 55 to 56 million tons of grain crops will have to be produced in the CSSR during the Seventh Five-Year Plan. The SSR share can be estimated at 21 to 22 million tons which will require an approximately 10 percent gradual increase in the yield per hectare in comparison with the 1980 plan. The yields should attain approximately 4.8 tons per hectare -1 by 1985, with a further prospective increase as much as 5.5 tons per hectare -1 by 1990, while the overall area will be slightly reduced in favor of legumes and industrially processed crops.

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The analysis of grain crops consumption in our country has revealed that approximately 66 percent are used for feeding animals. The Seventh Five-Year Plan must cope with the increased consumption of bread grains resulting from the population increase, and fully meet the need for grains to be used in fodder compounds for domestic animals.

The greater part of the grain-growing program is thus designed to alleviate the fodder supply problem. For this reason the fodder and protein programs constitute the second aspect of the grain-growing program and are its integral component. The intensification of production of all types of fodder can ease the pressure on grain resources and fully meet the need resulting from the desirable, planned increase in meat consumption in the population's diet. With reference to this linkage, the type structure of the entire plant production will necessitate certain revisions which will also affect grain crops. This is the effect of the newly-formulated nationwide grain-growing program.

The 1978 crop of 10.462 million tons of grains included 5.601 million tons of wheat, two-thirds of which were processed by flour mills or used for seed, and one-third used for fodder. This third will be gradually replaced by equally nutritious winter barley until it reaches 20 to 25 percent of the total area. It will contribute to the better distribution of labor during the sowing of winter crops and harvesting of grain crops. It will produce a good preproduct for winter rape, summer and stubble mixtures, and make possible the gradual implementation of the program of 10 to 12 percent of mixtures from the arable land.

This plan will be possible to implement gradually as agronomy will master the production of winter barley, seeds and summer compounds. I am of the opinion that our agronomists will not be afraid of this task and will cope with it skillfully.

While maintaining the present production volume of grain crops, the purpose of this intervention in their structure is to prolong the period of green fodder feeding by 14 to 21 days in fall, and to advance it by at least by 1 week in spring.

Specifically, the goal of producing 10 to 12 percent of compounds on the arable land should be attained approximately in the following way:

- 1.5-2.0 percent winter mixtures;
- 5.0-6.0 percent subsowing of "davnel" in the grain crops;
- 3.5-4.0 percent cruciferous and stubble mixtures.

By their advice regarding the proper seeds and agronomy, our fodder experts should be able to master this new direction and combine it effectively with the traditional experience in growing mixtures.

I would like to make a few remarks concerning the inclusion of crucifers in the group of mixtures. There are several reasons for it: a rapid reproduction of seeds for sowing; a rapid increase in the bioplasm with a good nutritive value; a phyto-sanitary effect on the plants subsequently grown. Important also is the fact that the seed for sowing is cheap, the need for it is small and the planting of these intermediate product cultures is very economical. Even in the climatically unfavorable conditions for example it does not increase the costs and the matter produced can be either used as fodder or plowed in as green fertilizer.

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Considering these arguments, the structure of cruciferous plants could be for example, as follows:

50 percent Tyfon a new turnip-based type from the Netherlands;
30 percent resowing rapes for fodder (Tantal, Tim, Kentan from France; Emerald, Perko from the FRG; Akela from the Netherlands);
20 percent--spring rape for fodder (Petranova from the FRG; Brio from France).

As to the utilization of intermediate products, it is anticipated that 50 percent of the total area will be used for fodder and the other 50 percent (also because of the risk involved) will be designed for green fertilizing.

- Let us return to the grain crops. We see the second necessary change in the correction of the corn-growing program for the areas with adverse production conditions where corn for silage does not do well. Under such conditions corn for silage does not sufficiently help feeding of the cattle because of the low content of dry matter and easily digestible glycines. This makes it necessary to replace it gradually by another type which produces more high-quality bioplasm. Under consideration is oats for grain and hay, or drying of the entire plant at a very high temperature. New types of oats such as Saturn are very suitable for this purpose, but also in the foreign assortment there are several varieties which are capable of yielding, under large-scale production conditions, approximately six tons of grain or more than 30 tons of green matter. From the nutritional standpoint, oats are exceptionally valuable for feeding of calves and milk cows. We see also agronomic advantages in the improvement of structure and rotation of crops. In our opinion, approximately 250,000 hectares should be sown with oats for grain and approximately 70,000 hectares with oats harvested for hay and dry forage. The SSA share should be approximately 30,000 hectares for grain and 12,000 to 14,000 hectares for dry forage.

We believe that the outlined "renaissance" of winter barley, oats and intermediate products--although it will create some agronomic problems and will also require new procedures (such as sowing of intermediate products in the already standing grain crops 3 to 4 weeks before harvesting)--will help us to implement the plans for production increase in accordance with the needs of animal production. At the same time, it will create the prerequisite for reducing the grain-growing areas by approximately 100,000 hectares in the entire CSSR. This area will be needed for growing of highly efficient root crops, particularly of sugar beet.

Legumes

- Another important component of the newly-formulated grain-growing program are legumes and oil plants. Apart from their basic function in the nutrition of the population, they occupy an important place in the protein program since they constitute part of fodder compounds for the nutrition of animals. In accordance with the resolution of the 13th Plenary Session of the CPCZ Central Committee, 300,000 to 500,000 tons of legumes are to be produced annually by the end of the Seventh Five-Year Plan. It is anticipated that the SSR will produce about one-third of this amount. Legumes used as fodder have a number of advantages from the agronomic standpoint; they favorably affect the soil; are good conditioning plants;

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and save the costs of expensive nitrogen fertilizers. A disadvantage is the uncertainty about the crop which is partly caused by the subjective factor, that is shortcomings in cultivation such as the depth and time of sowing and others. The 1980 plan calls for 2.34 tons per hectare -1, while the average yield should reach 2.8 tons per hectare-1 by the end of the five-year plan. This will represent a 19.7 percent increase in the yields per hectare. The prospect for 1990 is approximately 3.0 tons per hectare -1. Experiences of our prominent growers of peas and beans in the entire CSSR confirm that this is a realistic estimate. The plan anticipates that 127,000 hectares are to be sown with legumes in the entire CSSR, with the SSR share amounting to 39,000 to 41,000 hectares. Peas and beans will remain the key legumes also in the future. Our list contains very promising and fertile types of peas (Dukat, Orion, Smaragd, DE-989 and others) which, with proper agronomic treatment, are capable of producing 3 to 4 tons per hectare. The selected types of beans also meet our requirements because, when harvested at the wax-milk maturity, they are suitable for production of high-quality dry fodder.

It must be emphasized and attention must be drawn to the fact that growing of legumes calls for strict zoning, chemical protection of young plants (weeds, pests), dessication of plants, and efficient large-scale production technology.

Growing of legumes requires strict observance of agronomic discipline and adequate supply of materials and equipment. As they do in regard to grain crops, our agronomists should work according to a plan and purposefully also in this case. They should develop legume-growing programs containing agronomic elements based on scientific findings.

Oil Plants

In order to comply with the anti-import measures, it is necessary to expand growing of raw materials for the fats industry, that is for nutrition of the population with quality oils and fats. It is therefore necessary to further increase the area sown with winter rape so that it reaches 90,000 hectares in the CSSR by the end of the Seventh Five-Year Plan 80,000 hectares of which will be sown with types containing no saccharic acid. Wherever favorable conditions exist for it, the area sown with sun-flower will gradually be extended to 15,000 to 19,000 hectares. The highly-efficient Soviet types and hybrids will be used primarily.

We therefore, anticipate a slight gradual decrease in the areas sown with winter rape in Slovakia from 25,000 hectares to 23,000 to 21,000 hectares, while simultaneously increasing the yields per hectare by 10.6 percent by the end of the Seventh Five-Year Plan and by 11.7 percent by the end of the Eighth Five-Year Plan (2.4 tons and 2.7 tons per hectare -1, respectively). The increased production of oil seeds, particularly of rape, sunflower and soya will significantly contribute to the implementation of the protein program.

Root Crops

Our plans for growing of root crops are also very demanding. The area planted with sugar beet will have to be stabilized and its production intensified with the

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transition to the fourth stage of growing system characterized by production eliminating all human labor. We must produce at least five tons of raffinose per hectare. Production in the SSR will stabilize at 60,000 hectares. We should also stabilize the yields of industrially processed sugar beet at 41.7 to 43.3 tons per hectare -1 and produce as much as 50 tons per hectare by the end of the Eighth Five-Year Plan. Here we face a number of problems which must gradually be solved: while using a monocarpic type of culture, we must apply agrochemicals and employ mechanized equipment all the way up to comprehensive production lines in order to reduce losses to a tolerable level.

Here again, however, we face a problem which has been with us for a long time. Animal production makes it imperative to supplement fodder compounds with raw sugar. For this reason also the 13th Plenary Session of the CPCZ Central Committee stated in its resolution that, in accordance with national economic effectiveness, sugar raw materials should be used for feeding purposes, and particularly for feeding cattle. It also required that the large-scale production methods of cultivation of root crops for fodder be gradually applied on an increasing scale, with adequate employment of equipment and chemicals, so that their area will eventually reach 150,000 to 160,000 hectares.

Although this program is of a long-term nature, its implementation must begin during the Seventh Five-Year Plan. There are several ways of implementing it, but I would like to mention at least one.

About 27 percent of the area mentioned above should be planted with sugar beet which will be processed into molasses--thick syrup--and thus will be returned to agricultural enterprises. Approximately 40 percent should be planted with sugar beet for fodder and "semi-sugar beet," and 33 percent with turnip, with the yields amounting to 40 to 50 or even 85 tons per hectare -1. This structural change should be equivalent to production of 735,000 tons of barley above the present level. Considering the average yield of 4.1 tons of barley per hectare -1, this will save us 183,250 hectares of arable land. The material and technical costs of this saccharid program, including seeds, agrochemicals and machinery, will amount to approximately Kcs 2,300 per hectare planned, but will substantially contribute to the animal production increase.

In potato production, agricultural enterprises must focus attention on increasing the yield per hectare and, in cooperation with the food industry and trade, on more effective utilization of production and substantial reduction of losses in warehousing. For this purpose, three or four big plants will have to be constructed for their comprehensive processing during the Seventh and Eighth Five-Year Plans. In the SSR, we anticipate a reduction of areas for growing potatoes from 80,000 hectares to 65,000 hectares by the end of the Seventh Five-Year Plan, and to as little as 55,000 hectares by the end of the Eighth Five-Year Plan. The agronomic level, however, must improve to such an extent that we will produce 20 tons per hectare by the end of the Seventh Five-Year Plan (which represents a 13.5 percent increase over the 1980 plan) and 22 tons per hectare -1 (a 10 percent increase) during the following five-year plan. This plan is very demanding

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Bulk Fodder

In connection with the measures to be enacted in production of bulk fodder during this five-year plan, a further increase in growing of perennial fodder is anticipated so that it will cover approximately 17 to 18 percent of the arable land and the yield per hectare will increase to seven tons of dry matter. In addition, the cultivation of meadows and pastures will reconstantly intensify so that we shall be able to achieve, with proper equipment and larger doses of fertilizers, at least five tons of dry matter per hectare of meadows. In our speculations about the Seventh Five-Year Plan, we anticipate a 13.8 percent increase in production of bulk fodder in terms of hay over the 1980 plan and another 11 percent increase by the end of the Eighth Five-Year Plan. This will create necessary conditions for every agricultural enterprise to become self-sufficient in bulk fodder including the indispensable reserves.

Fruit and Vegetables

Apart from the development program of plant production already mentioned, it is necessary to emphasize that the Seventh Five-Year Plan is to effect a radical change in production of fruit, vegetables and grapes, and the intensification must continue also during the Eighth Five-Year Plan. When we compare the production targets for 1985 and 1990 with the 1980 plan, it is clear that we anticipate a 34.3 percent and 15.5 percent increase in production of fruit, a 14.8 percent and 9.7 percent increase in production of vegetables, and a 32.6 percent and 25.9 percent increase in production of grapes respectively. In this way, the intention to improve the nutritional value of food in the "consumer basket" will be implemented. Our ultimate goal is to increase the average consumption of fruit to 65 kilograms and of vegetables to 91 kilograms in the CSSR per capita annually.

Requirements of Plant Production

To sum up, we can briefly state that the Seventh Five-Year Plan represents new, demanding and increased tasks for our agronomy. It will bring about a number of changes in the type structure designed to achieve a better satisfaction of needs of our society in terms of food, raw materials and fodder. The changes considered in this article are considerable, but also agronomically beneficial, and will result in the improved structure of the entire plant production. The increase in tasks and effective rational intensification will require a considerable amount of materials and equipment. For this reason, we shall work intensively on soil reclamation: an additional 160,000 hectares will be irrigated and 290,000 hectares drained. The supply of lime will gradually increase to 2.9 million tons by 1985. The deliveries of industrial fertilizers will also gradually increase and should amount to 300 kilograms (120 nitrogen, 95 phosphorus and 85 potassium) per hectare of agricultural land. Agricultural enterprises must also use manure and compost more efficiently. A further increase in production of agrochemicals is also anticipated.

The resolutions of the 13th Plenary Session of the CPCZ Central Committee specified the tasks also for the engineering industry which must manufacture an adequate supply of quality machines, drawn-type equipment, trucks for agriculture and so on.

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From this it is clear that the CPCZ assigns to the nutrition of the population a prominent place in its program. It describes it as the societywide task whose results are consumed by every citizen of this republic and which is to be achieved not only by agriculture, but also by various sectors of our entire economy. We are fully aware that these demanding tasks, if they are to be fulfilled, must be appropriately backed by agronomy and adequate supply of materials and equipment because otherwise the results will be jeopardized.

The Seventh Five-Year Plan will be a touchstone primarily for the agronomists of agricultural enterprises and for their cooperation with the scientific and research sector

*)FOOTNOTE: A report read at the seventh Slovak seminar on rational utilization of industrial fertilizers, Nitra 1980

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CZECHOSLOVAKIA

GOAL SET TO SAVE 2 MILLION TONS OF STANDARD FUEL

Prague TECHNICKY TYDENIK in Czech 9 Sep 80 pp 1, 2

[Interview by (wha) with Engineer Milan Rusnak, ScC, deputy minister of fuels and energy of the CSSR: "Power Industry in the Next Five-Year Plan--Its Goal: Conservation of Almost 2 Million Tons of Standard Fuels"]

[Text] Economic development of all industrially advanced countries at present is influenced to a major extent by its energy situation. The problems of securing adequate supplies of solid, liquid and gaseous fuels and generating sufficient quantities of electric power are the tasks which every country must deal with if its economy is to prosper. The significance and importance of the work performed by all participants in the development of the fuels and energy base in our country have found their expression in annual celebrations of the Day of Miners and Power Engineering Workers. On the eve of that holiday we asked Engineer Milan Rusnak, ScC, deputy minister of fuels and power, for an interview.

[Question] Comrade deputy, what is the current situation in our power industry?

[Answer] The general balance of electric capacities and optimum supplies of fuels in our electric and thermal plants at the beginning of this year enabled our power plants to operate smoothly and meet the consumers' needs throughout the first 6 months, when the electric power generated in public plants amounted to 31,114 GWh, i.e., 102.6 percent of the plan. Generation of electric power was 10.6 percent above the same period of 1979. The V-1 nuclear power plant in Jaslovske Bohunice, which particularly contributed to that growth, generated 1,728 GWh in its V1 unit, which is 428 GWh more than envisioned by the plan. Steam power plants fulfilled their production at 100.8 percent, and hydroelectric power plants surpassed the plan by 7 percent. The annual plan for the production of electric power has been fulfilled at a total of 50.8 percent.

As for generating heat for direct delivery, in the first 6 months it represented 61.292 million GU, in other words, the plan has been exceeded by 264,000 GU. Standard fuel used for its production came to 1,2953 GU/GU--which means that the plan was 99.9 percent fulfilled.

Although this is still summer, our energy resource managers are focusing their efforts on the fulfillment of a program for winter preparations; the program was adopted last April at a joint consultation of the directors of the power industries

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with the minister and, it is to the credit of the working people's initiative that, thus far its fulfillment has been quite satisfactory in all operations.

[Question] What can you tell us about the outlook for the developments in the power generation during the Seventh Five-Year Plan?

[Answer] In comparison with the preceding period, we expect a more auspicious situation in the area of generating resources. Difficulties with electric power generation in steam power plants will continue, especially in the first years of the five-year plan, due to the deteriorating quality of [available] lignite. This is directly related to the task of adapting the technological conditions of electric facilities so as to make optimum use of the available coal. It is, therefore, necessary to pay utmost attention to renovation, repair, and maintenance of our electric and thermal generation plants.

Despite the fact that we have already gained experience with the operation of the first units in Jaslovske Bohunice, it will be very demanding for our energy resource managers to increase sharply the generation of electricity in our nuclear power plants to as much as up to 16 billion KWh in 1985, which is about 18 percent of the total production from all sources of the Czechoslovak electrification system. In 1985 this production will save 6 million [tons of standard fuel] tnp as compared with comparable generation from steam sources.

We are taking advantage of our hydroenergetic potential as well. At present its exploitation represents approximately 38 percent but, according to projections, the construction of power plants on the lower Vah River, and especially on the Danube, will raise it to 61 percent by the year 1990.

In addition to conventional primary sources, secondary sources of energy, such as, for instance, solar energy, geothermic waters in Slovakia, burning of communal and wood waste, heat from the compressor stations of the long-distance gas pipelines, etc., are being developed and exploited in recent days. The projected generation of energy from such sources will involve savings of about 220,000 tnp by 1985. It will be used to produce low-potential heat for heating of housing units and water, and for air-conditioning.

[Question] What are the prospects for the Czechoslovak nuclear program?

[Answer] The first unit of the V-1 nuclear power plant in Jaslovske Bohunice was put into operation in 1978 and the second unit this year. The construction of two other VVER 440 units in the V-2 nuclear power plant has progressed to an advanced stage. After their completion, the energy center in Jaslovske Bohunice will have 4 x 440 MWe at its disposal.

Our first nuclear power plant to be put into operation in the CSR is located in Dukovany in South Moravia. After its completion our national economy will gain still another source of nuclear energy with the capacity of 4 x 440 MWe. Installed capacity of nuclear power plants should be to 3,520 MW by 1985.

Another nuclear power plant will be put into operation in Mochovce in South Slovakia in the Eighth Five-Year Plan (4 x 440 MW). That period will be characterized by a transition to production units of a higher specific capacity, i.e., power plants

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with VVER 1000 reactors. The first prototype power plant with the VVER 1000 reactors will be located in South Bohemia, and another one will be built in North Moravia. The construction of two units, each with 1000 MWe capacity, is envisaged for each location, and their generation capacities will later be increased by the construction of additional reactors.

[Question] The construction of nuclear power plants certainly puts very high demands not only on energy specialists, but also on other branches of our national economy. What kind of cooperation is being developed in this respect?

[Answer] The fact that, with the help of Soviet experts, the production of equipment for nuclear power plants has been successfully mastered in a short time must be considered a great success for Czechoslovak industry. Today we are among the 10 industrially developed countries in the world, capable of manufacturing and supplying technological equipment for nuclear power industry.

Production of such equipment as reactor sets, steam generators, special fittings, etc., has been mastered and introduced during the first stage of the plan for scientific and technological development. On the basis of contract agreements, the Czechoslovak production base will supply such sets for export as well as for domestic construction. The objective of the second stage is to develop and master, in cooperation with the USSR, the production of sophisticated equipment for nuclear power plants and 1000 MW reactors (VVER 1000), and technological planning for the construction of such power plants in the CSSR. The solution of another key task of the CEMA countries in this area--the construction of nuclear power plants supplying heat for large communities and industrial centers--relies on the above-mentioned VVER 1000 model.

Nuclear power industry could not be developed over an extended period by means of thermo-nuclear reactors, because of the high consumption of nuclear fuel (they realize less than 1 percent of the energy concentrated in uranium). For that reason--the outlook for Czechoslovak power industry depends on the introduction of fast breeder reactors which make it possible to increase utilization [efficiency] of uranium up to 50 times. The close linkage with the operation of fast breeder reactors in the USSR enables Czechoslovak construction experts to gain advanced experiences. For instance, steam generators produced in the Klement Gottwald Plant of the Pruni Brnenska Stogirna in Brno have proved successful in the USSR in fast breeder reactors of the BOR 60 and Shevchenko lines.

[Question] One of the methods to balance fuels and energy in the CSSR involves conservation programs. What are the main goals of efficiency in our power industry in this respect?

[Answer] A long-range rationalization program--i.e., reduced consumption of energy in the form of electric power, coal, heat and crude oil--is specified in the partial state goal oriented program 01, Reduction of Losses in Refining, Conversion and Transportation of Fuels and Energy, prepared by our ministry for the Seventh Five-Year Plan. It represents a part of the state goal oriented program for Rationalization in Consumption and Utilization of Fuels and Energy, sponsored by the Federal Ministry for Investment and Technological Development.

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In accordance with rationalization programs, obsolescent conventional condensation power plants will be converted to heat-producing operations. It is presumed that by gradual conversion of eight condensation power plants to heat generation, at least 90,000 tnp will be saved by 1985 over 1980, and as much as 421,000 tnp by 1990 as compared with this year.

Another opportunity to conserve fuel stems from the heat supplied by nuclear power plants. Heat supplied from the power plant in Jaslovske Bohunice alone makes it possible to save 75,000 tnp of fossil fuels by 1985 as compared with this year.

It is expected that programs to reduce consumption of standard fuel units by improving parameters in power plants with 110-and 200-MW units, and renovation of selected groups of power plant equipment will save 330,000 tnp in the last year of the Seventh Five-Year Plan over 1980. Similarly, programs for the management of the whole Czechoslovak electrification system envision savings of 330,000 tnp. In general, rationalization programs sponsored by the CSSR Ministry of Fuels and Energy are expected to save fuels and energy in the amount of 1,920,000 tnp by 1985.

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CZECHOSLOVAKIA

IMPORTANCE OF 'ANTI-IMPORT' STRESSED

Prague TECHNICKY TYDENIK in Czech 9 Sep 80 p 3

[Article by Jaromir Sodomka, director of the MEZ enterprise in Nachod, member of the Presidium of the Central Council of the Czechoslovak Scientific and Technological Society: "Important Goal: Import Substitution Expeditor Teams of the MEZ in Nachod"]

[Text] The MEZ national enterprise in Nachod manufactures small electric revolving machine components. An important part of its production program consists of automation and control units produced mainly in small lots.

In the past, the so-called small-scale measures and broad application of the MTM [expansion unknown] rationalization method produced considerable savings. At present, new opportunities to raise productivity of labor have already been rather exhausted. Naturally, further scientific and technological progress would be unthinkable without modern technological equipment for efficient production.

Due to the production program of the MEZ in Nachod and ensuing specific requirements, appropriate machine tools for our enterprise may be procured for the most part only from specialized foreign manufacturers in the capitalist countries at the price of investments amounting to many millions [of korunas] in foreign exchange.

In accord with the decisions of the 15th CPCZ Congress and of subsequent meetings of the Central Committee, it was decided to rationalize expeditiously vital areas of production in our enterprise from our own resources and with minimum outlays. In practical application this decision meant accelerated production of scores of top quality single-purpose machine tools of our own design, which was made possible because of our experience in production of single-purpose machine tools and by an extensive line of advanced standardized components and parts (hydraulic traverse units, milling heads, tool posts, electronic modules, housings, mountings, clamp systems, interlocking hydraulic equipment, etc.). The newly developed machine tools consists mostly of building block type semiautomatic and automatic equipment based on hydraulics; the automatic control system is designed of semiconductors and integrated circuits. Its design guarantees a high degree of reliability of the facilities.

These single-purpose machine tools have gradually improved the efficiency of the production of basic electric motor parts (rotors, stators, end frames, shafts, etc.).

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Modern design is of particular importance for the construction of single-purpose tools; moreover, ergonomic requirements must be considered. Introduction of these machine tools into production means not only higher productivity of labor, but also less laborious manual work, more efficient utilization of production areas, substantially shortened production runs, and a better quality product.

The machine tools (most of them of the building-block type) are manufactured at a very fast rate. Based on the experience we gained and on our own developed system of standardized components of single-purpose machinery, it is possible to design and manufacture necessary machine tools, in some instances, within a few months.

From thorough analyses and practical experience in our enterprise it follows quite unambiguously that best results are achieved if the production in certain technological centers is comprehensively streamlined with the use of single-purpose machinery. Such programs call for systematic efforts and personal involvement on the part of teams of technicians and workers in various professions. Upon the request of the enterprise management and based on the decisions of the fifth meeting of the Central Council of the Czechoslovak Scientific and Technological Society with expanded participation, the branch of the Czechoslovak Scientific and Technological Society undertook the solution of the most demanding rationalization programs and organized several expeditor teams. Their purpose is to improve efficiency in vital areas of production by fully exploiting the knowledge and know-how of the workers and technicians with a minimum of investment requirements.

At present there are six expeditor teams working in our enterprise. Several examples illustrate the importance of their work.

One of the teams resolved the problem of efficient production of end shields for shield motors. The result is new technology equipment using a semiautomatic machine of our own construction. It has raised productivity of labor six times, and made import of Swiss-made machinery valued at Kcs 1 million in foreign exchange unnecessary. We have manufactured six such units and thus multiplied overall profits.

Another team has developed a modern method of smoothing and center-drilling of shafts, and made finishing of rotor bundles more efficient. These problems were successfully resolved by the development of four program-controlled two-spindle semiautomatic machines, some of which correct automatically for the dimensions of the product. Another improved piece of equipment in this line will be put into operation before the end of this year. Thus, the average productivity of labor is up 100 percent. Each of these machines has saved Kcs 1.2 million in foreign exchange.

The most successful program of the expeditor teams in the recent period has been more efficient production of stators--one of the most exacting components of electric motors. Lack of highly streamlined production of stators hampered the growth of the plan in the pressing shop and thus, of the whole enterprise. Original technology, suitable only for production in small lots, was redesigned on the available machine-tooling and forming equipment.

Following a thorough analysis of the current situation, a decision was made to manufacture with our own resources the required single-purpose machinery with

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several additional tools and facilities. The line consists of semiautomatic armature winding machine tools, drilling and welding machines and automatic tools for surface machining of the stator. The machinery is interconnected with gravity conveyors on a synchronized line. Productivity of labor was increased by 80 percent, and physical exertion of workers was simultaneously reduced. The technological standard of the production and quality of stator armatures substantially improved. The production time was reduced five times.

This method of streamlining the production of stator armatures guarantees the fulfillment of the stator production plan in 1980 as well as in the following years and a cost reduction of Kcs 500,000. By the same token, over Kcs 3 million of foreign exchange have been saved by not importing similar equipment from the capitalist countries. The energy savings of 114 MWh per year under this rationalization program are also significant. At present, two production lines of this type are in operation.

The technically most challenging problem for the expeditor teams is the introduction of advanced technology for winding rotor armatures for small electric engines. Although it has been rationalized by the MTM method, the original equipment still required excessive manual work. The problem was resolved by the development and production of fully automated machinery; all the operator has to do is to fill the containers and control the operation. The labor productivity rose by 100 percent. Two machine tools of this kind are already in operation. This case involves another very important import substitution achievement (Kcs 3 million in foreign currency saved).

At present the work teams are dealing with other demanding rationalization tasks in the use of machinery of our own design, which will mean a considerable labor-saving contribution for our enterprise as well as savings of materials, fuels and power.

Our pressure molding foundry will be essentially modernized and three semiautomatic cast finishing machine tools have been designed and manufactured for that purpose. The machines are linked with a cutting press for the gating in the die-casting of rotors and for stamping of auxiliary die-casting plugs. Semiautomatic machines with specific power of 300 kN will make possible the use multiple dies.

Intensive work on the development of additional semiautomatic machines for more efficient winding of stators manufactured in small lots is now under way. A new line production for rotor manufacture, which is being planned, will also bring our enterprise, in addition to considerably reducing manual work, considerable savings in electric power and will eliminate imports of foreign materials. Numerically controlled machine tools, which will improve the efficiency of finishing operations in small lots, is being developed. Production of new assembly lines using minirobots of our own design is also on the drawing board.

Technical data for some of the machinery developed by the MEZ in Nachod have been passed on to various enterprises in the CSSR; experts from the USSR, the GDR and the Polish People's Republic have expressed their interest in some of our tools. Because rationalization by means of modern single-purpose machinery is at present the most efficient and most realistic method of increasing labor productivity, the plan aimed at doubling the capacity of machine tool production which has been developed will be expeditiously implemented.

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Expeditor teams composed mostly of members of the Czechoslovak Scientific and Technological Society are participating in the implementation of all these programs. That is their specific response in the implementation of the decisions of the 14th CPCZ Central Committee meeting, as well as a good example of the scientific-technological progress in our production.

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